

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellant: Wayne Edward Beimesch	Confirmation No.: 6754
Serial No. 09/806,274	Examiner: David A. Rogers
Filed: March 27, 2001	Group Art Unit: 2856
For: METHOD FOR MEASURING VOLATILE ORGANIC COMPOUNDS AND A KIT FOR SAME	Attorney Docket No.: 390780

April 11, 2008

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**REPLY BRIEF TO EXAMINER'S ANSWER**

Sir:

This Reply Brief is being submitted in response to the Supplemental Examiner's Answer issued on February 14, 2008 in accordance with 37 C.F.R. §41.41. This Reply Brief is timely filed within 2 months of the mailing of the Examiner's Answer.

In accordance with 37 C.F.R. §41.37, and fully responsive to the Office Action dated November 16, 2006 in the Application 09/806,274 (hereinafter the '274 Application), Appellant filed a Notice of Appeal, with the appropriate fee as required by 37 C.F.R. §§41.31, on February 16, 2007. An Appeal Brief, along with the \$500 fee as required by 37 C.F.R. §41.20(b)(2), was filed on May 16, 2007. A corrected version of the Appeal Brief was filed on July 23, 2007 in response to the Notification of Non-compliant Appeal Brief mailed June 22, 2007. A Substitute Appeal Brief and Reply Brief was filed on December 27, 2007 in response to the Examiner's Answer issued on November 1, 2007. This Reply Brief is being submitted in response to the Supplemental Examiner's Answer issued on February 14, 2008 and it is being timely filed within 2 months of the mailing of the Examiner's Answer.

**(1) Real party in interest**

The real party in interest for this appeal is Midwest Research Institute. Evidence of this assignment, which was recorded on March 27, 2001, may be found at reel/frame 012337/0269.

**(2) Related appeals and interferences**

No other pending appeals or interferences are currently known to Appellant that will directly affect, be directly affected by, or have a bearing on the decision to be rendered by the Board of Patent Appeals and Interferences in the instant appeal. One previous decision and one previous order in this matter rendered by the Board of Patent Appeals and Interferences dated March 19, 2004 and June 12, 2006, respectively, were attached as an Appendix with the Substitute Appeal Brief filed on December 27, 2007.

**(3) Status of claims**

Claim 1-7 were rejected in the last Office Action and are at issue in this appeal. Claims 8-10 have been previously cancelled. Claims 1-7 are currently pending in the application and stand rejected as follows:

(a) The double patenting rejection of Claims 1-3 and 6 over claims 11-13 of co-pending U.S. Patent Application 10/724,564 has been withdrawn by the Examiner's Answer mailed on November 1, 2007. *See* page 3, Examiner's Answer dated November 1, 2007.

(b) Claims 1-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,140,845 to Robbins, U.S. Patent No. 5,809,664 to Legros *et al.*, "Chemical Principals" by Masterton *et al.* and "Compilation of Air Pollutant Emission Factors, AP-42" by the Environmental Protection Agency (EPA), hereinafter referred to as EPA Method AP-42. Appellant respectfully traverses this rejection and requests withdrawal of same.

**(4) Status of amendments**

The '274 Application was filed on March 27, 2001. The case was appealed, with a first decision from the Board rendered on March 19, 2004, a copy of which is attached as an appendix herewith. The Board reversed the examiner's decision, and the case was sent back to the examiner for further prosecution. A first office action was then mailed on May 6, 2004, to which a response was filed and entered November 8, 2004. On February 7, 2005, a final office action was mailed, prompting a second appeal.

An Order Returning the Appeal to Examiner was issued by the Board on June 12, 2006, because the Examiner failed to properly complete the section Evidence Relied Upon in the Examiner's Answer. A non-final office action was then mailed on June 22, 2006, to which a response was filed on September 22, 2006. On November 16, 2006, a final office action was mailed, prompting this appeal. A Notice of Appeal was filed on February 16, 2007. Claims 1-7 are currently pending, of which Claims 2-7 are original (without claim amendment during prosecution). Claim 1 was amended to omit the word

"solid" as lacking proper antecedent basis in the claim language employed. Claims 8-10 have been previously cancelled.

**(5) Summary of claimed subject matter**

Claims 1-7 are directed to a method for measuring volatile organic compounds in a process system having emissions.

Claim 1 is the only independent claim in the application. Claim 1 recites a "method for measuring volatile organic compounds of a material produced in a process system having emissions." The method of claim 1 comprises 3 steps, namely (a) disposing an amount of said material in an enclosed bag having a sealable opening such that there is headspace above said material in said enclosed bag; (b) storing said enclosed bag containing said material at the mean exit temperature of said emissions of said system such that equilibrium between said material and said headspace is reached; and (c) introducing samples from said headspace into a flame ionization detector which thereby measures said volatile organic compounds of said material.

Referring to the Specification as originally filed, lines 28-31 describe placing a material in an enclosed bag and storing the bag with the material at the mean exit temperature as recited in Step (b) of Claim 1 until the contents in the bag reach equilibrium. Lines 1-2 on page 2 further describe that after equilibrium has been reached, the content in the headspace of the bag may be analyzed with a flame ionization detector. Lines 5-7 on page 2 discusses that the bag may have a sealable opening and there is a headspace after the material is placed in the bag.

**(6) Grounds for rejections to be reviewed on appeal**

Whether Claims 1-7 are obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 5,140,845 to Robbins, U.S. Patent No. 5,809,664 to Legros *et al.*, "Chemical Principals" by Masterton *et al.* and "Compilation of Air Pollutant Emission Factors, AP-42" by the Environmental Protection Agency (EPA), hereinafter referred to as EPA Method AP-42.

(7) **Arguments**

Claims 1-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,140,845 to Robbins, U.S. Patent No. 5,809,664 to Legros *et al.*, "Chemical Principals" by Masterton *et al.* and "Compilation of Air Pollutant Emission Factors, AP-42" by the Environmental Protection Agency (EPA), hereinafter referred to as "EPA Method AP-42." Appellant respectfully traverses the rejection because the cited references taken together do not teach or suggest Appellant's invention as claimed and one of ordinary skill in the art would not be able to adapt the teachings from the prior art in order to arrive at Appellant's invention. Appellant requests withdrawal of the rejections.

All arguments presented by Appellant in the Substitute Appeal Brief filed on December 27, 2007 are hereby incorporated into this Reply Brief.

The Examiner has recognized that Robbins does not teach a method wherein the sampled material is stored at the mean exit temperature of the emissions of said system. *See* Page 5, lines 12-14 of Examiner's Answer dated November 1, 2007. In fact, Robbins, if anything, teaches away from Appellant's invention. As the Board of Patent Appeals observes, one of skill in the art would have reasonably inferred from Robbins that the equilibrium temperature can be the ambient temperature of the area around the "storage tanks" where the ground water or soil mixed with water was taken, or lab room temperature, and not the mean exit temperature of the emissions of said system as Appellant claims. *See* Page 6, *Ex parte* Wayne Edward Beimesch, Board of Patent Appeals and Interferences, March 19, 2004.

Neither Masterton *et al.* nor EPA Method AP-42 teaches specifically that the bag with the sampled material should be held at the mean exit temperature of the emissions of said system. Even if we accept the Examiner's position that, according to Masterton *et al.*, "at higher temperatures more vapor molecules will be present in the headspace than at lower temperatures," the cited references still lack any showing of storing the bag at the mean exit temperature of said emissions of said system. *See* page 6, lines 2-5 of Examiner's Answer dated November 1, 2007. Since the term "higher" is a relative term, there can be an infinite number of temperatures that are higher than a given temperature

such as, for example, room temperature. Masterton *et al.* never teaches how high the temperature should be, let alone a method wherein the sampled material is stored at the mean exit temperature of said emissions of said system.

EPA Method AP-42 does not cure this defect. EPA Method AP-42 teaches that the amount of vaporized VOC “depends on many variables such as tower temperature and the volatility of organics used.” *See* Section 6.8.3.2 of EPA Method AP-42. Based upon the context, the term “tower” refers to the Spray Drying Tower in Figure 6.8-2. The plain meaning of the term “tower temperature” is the internal temperature of the Spray Drying Tower. Thus, EPA Method AP-42 at most suggests using the temperature inside the Tower for incubation of the bag, rather than the mean exit temperature of the emission.

The Examiner relies on the Board opinion issued March 19, 2004 to support the notion that Appellant’s system can be an open or closed system. While Appellant respectfully disagrees with this position, for the sake of argument, even if we assume that Appellant’s process system can be an open or closed system, it must be one in which the “mean exit temperature of said emissions of said system” can be determined in order to establish the temperature at which the enclosed bag is to be stored. *See* Page 4, *Ex parte* Wayne Edward Beimesch, Board of Patent Appeals and Interferences, March 19, 2004.

The Examiner appears to rely on Legros *et al.* to teach a process system wherein such temperatures can be measured. Appellant agrees with the Examiner that Legros disclose measuring the temperatures at certain locations within the system. However, there is no teaching in Legros *et al.* to store a bag with the sampled material at a temperature measured at an exit where VOC-containing emission leaves the system and is released into the outside air. Merely because multiple thermometers can be installed within a system does not mean that a particular temperature, e.g., the mean exit temperature of the emissions of the system will be measured. Even if the mean exit temperature of the emissions of the system in Legros *et al.* is measured, there is no teaching that this temperature will be used as the temperature under which the bag will be stored. It is one thing to measure the temperature at a location in a system, it is quite a different thing to use such a temperature for the incubation of a bag with sampled materials in order to obtain an equilibrium in the headspace of the bag.

In summary, as explained above, the Board concluded in 2004 that one of skill in the art would have reasonably inferred from Robbins that the equilibrium temperature can be the ambient temperature of the area where the sample material is taken, or lab room temperature. Three new references, namely Legros et al., Masterton *et al.* and EPA Method AP-42, have been cited since that Board decision of March 19, 2004; however, none of these three references teach or suggest incubating the bag with sampled material at the mean exit temperature of said emissions of the system. Nor has the Examiner established that it is common knowledge to one of skill in the art that the bag with sampled material should be stored at the mean exit temperature of said emissions of said system in order to reach equilibrium in the headspace. Therefore, because the teachings in the three new references do not outweigh Robbins which suggests that the equilibrium temperature can be the ambient temperature of the area where the sample material is taken, one of ordinary skill in the art would not be motivated to use the mean exit temperature of said emissions of said system as presently claimed. The Examiner has failed to establish a *prima facie* case of obviousness in rejecting the instant claims.

**(8) Claims appendix.**

A copy of Claims 1-7 involved in this appeal is enclosed as an appendix.

**(9) Evidence appendix.**

Not applicable.

**(10) Related proceedings appendix.**

Previous decision and order from the Board in this matter dated March 19, 2004 and June 12, 2006 were attached as an appendix with the Substitute Appeal Brief filed December 27, 2007.

**CONCLUSION**

Appellant respectfully requests the Honorable Board of Appeals reverse the Examiner in the rejections of Claims 1-7 under 35 U.S.C. § 103(a). Appellant respectfully solicits allowance of Claims 1-7, all of the Claims appealed and pending in the instant application.

Other than the costs for this appeal brief, no further fees are deemed due in connection with this matter. However, the Commissioner is hereby authorized to charge any fees which may be due in this matter from Deposit Account Number 12-0600.

Respectfully submitted,

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### Claims Appendix

1. A method for measuring volatile organic compounds of a material produced in a process system having emissions, said method comprising:
  - (a) disposing an amount of said material in an enclosed bag having a sealable opening such that there is headspace above said material in said enclosed bag;
  - (b) storing said enclosed bag containing said material at the mean exit temperature of said emissions of said system such that equilibrium between said material and said headspace is reached; and
  - (c) introducing samples from said headspace into a flame ionization detector which thereby measures said volatile organic compounds of said material.
2. The method of claim 1 wherein said system is a fluid bed dryer.
3. The method of claim 1 wherein said system is a spray dryer.
4. The method of claim 1 wherein said storing step is for from about 5 hours to about 24 hours.
5. The method of claim 1 wherein said amount of said material is from about 1 gram to about 100 grams.
6. The method of claim 1 wherein said system is a storage tank.
7. The method of claim 1 wherein said mean exit temperature is from about 5°C to about 100°C.
- 8-10. (Cancelled).